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VEGETABLE-PHYSIOLOGICAL RESEARCH ON THE PROBLEM OF THE RESISTANCE TO DROUGHT OF THE GROUND-NUT

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VEGETABLE-PHYSIOLOGICAL RESEARCH ON THE PROBLEM OF THE RESISTANCE TO DROUGHT OF THE GROUND-NUT

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1 (a) The importance of drought to the yields in Senegal is shown.

(b) A tabular summary is given of the various morphological and physiological factors which govern the resistance of the plant to drought.

2 (a) The research of the I.R.H.O. during the initial stage is aimed at determining the stages of growth at which the plant is particularly susceptible to drought. For this purpose, experiments have been carried out in pots containing vegetation and also in plots of ground temporarily covered over for the purpose.

(b) These experiments have shown that the ground-nut is susceptible to drought at all stages of its growth, but most particularly at the stage during which it is in full bloom.

(i) The successive signs of greater resistance to drought are: more active growth, fuller flowering, earlier and more copious fructification, and finally, higher yields.

3 (a) During the second stage of this work, the effect of various methods of cultivation on the economy of ground water is studied. It has been shown in particular that the incorporation in the soil of finely ground shells (of nuts) may be regarded as an assurance against the risk of drought in North Senegal.

(b) Treatment of the seeds by a solution of trace element and calcium has been studied. It was noted especially that soaking the seeds in solutions of chloride of calcium increased the resistance of the plant to drought.

4 (a) Finally, the last stage of these studies has just begun. It comprises the finding of physiological tests in relationship to the resistance of the plant to drought, and which would permit of the orientation and improvement of the work of selection.

(b) The most interesting tests appear to be:

(i) measurement of growth under standardised conditions;

(ii) water content of the tissues;

(iii) resistance to dessication;

(iv) measurement of protoplasmic viscosity.

5. These studies call for amplification. The results obtained show that there is a possibility of their making a useful contribution to the problem of the resistance of the ground-nut to drought.